



Peer-to-peer payments: Surveying a rapidly changing landscape

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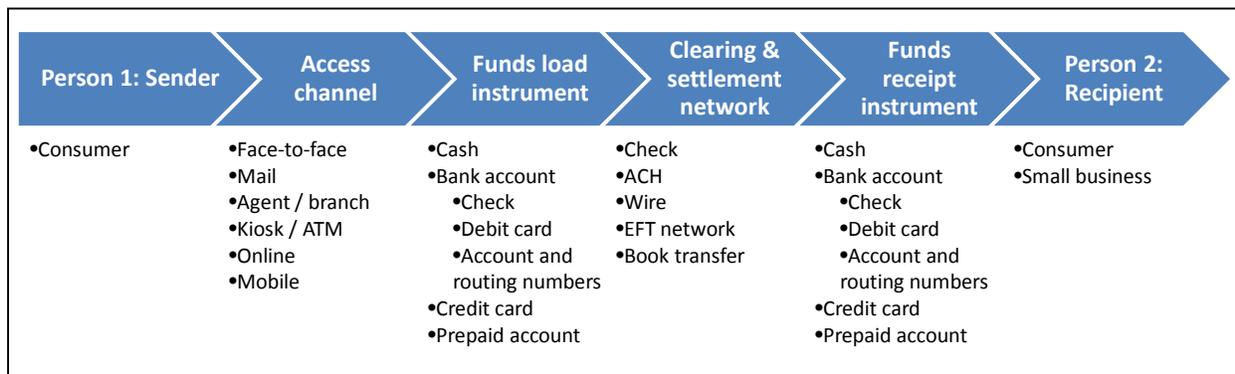
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1 Introduction

Peer-to-peer (P2P) payment products are some of the most innovative developments from the payments industry in the past decade. Much ink has been spilled covering the cutting-edge opportunities for banks and other payments providers in P2P payments. Consumers have never had so many payment choices. Alongside a host of recent entrants like PayPal and CashEdge, longstanding industry players like Fiserv, Visa, and MasterCard all offer P2P products. Additionally, three major banks just announced a collaborative P2P initiative called ClearXchange.

Despite this range of innovative offerings, however, the industry lacks a standard understanding of how the various P2P payments in the market work. Further, consumers and businesses frequently lack an understanding of relevant risks associated with P2P payments and that lack of understanding may also be a source of the inertia that keeps consumers relying on cash and checks for most P2P payments, despite a growing number of alternatives. This paper offers a framework to organize a discussion of P2P payments and evaluate the associated risks. This paper describes P2P transactions throughout the transaction life cycle, following the payment from sender to recipient and through all intermediate steps. The framework categorizes transactions by counterparties, access channel, funds load and receipt instruments, and settlement network. Any P2P payment can be mapped across this life cycle in categories that are mutually exclusive and comprehensively exhaustive. The output of this mapping details the nature of the counterparties and intermediaries involved in the payment, which dictate the individual transaction’s risk profile.

Figure 1: The P2P payment life cycle



2 Terms / Taxonomy

P2P payments are primarily defined by their counterparties. **Counterparties** are the individuals or entities sending and receiving payment. The counterparties to P2P payments are consumers and small businesses. Within the payments industry there is some disagreement about the types of payments that are called P2P. For the purposes of this paper, we define a P2P payment as a

payment made by one consumer to another consumer or to a small business. The sender of the payment is always a consumer. The recipient may be either a consumer or a small business. This definition is appropriate because one of the dominant uses of newer electronic P2P payment products is to make bill payments to small businesses. When the recipient business is a sole proprietorship, payments are made to the individual owner (e.g., a piano teacher, maintenance person, or nanny), the payment shares many characteristics with a consumer-to-consumer transaction. For this reason, researchers have sometimes found it can be quite difficult to distinguish between consumer-to-consumer and consumer-to-small business payments.¹ A business's payments to consumers and other businesses are not P2P payments under this definition, and are qualitatively different from P2P payments. A business-to-consumer payment is typically an income payment of a recurring nature, and is excluded from this definition. A business-to-business payment will generally involve an invoice and extended payment terms, and is also excluded. Sole proprietors occupy an ambiguous spot in between business and consumer because the same individual may play both roles. For the purposes of this paper, if a sole proprietor is making a P2P payment it is in their consumer role.

Access channels are the physical and virtual venues through which consumers send P2P payments. Possible access channels include face-to-face, mail, agent locations and bank branches, kiosks and ATMs, online, and mobile devices.

Instruments are the methods counterparties use to fund and receive P2P payments. Counterparties can use cash, bank account balances, a credit card line of credit, or prepaid account balances to fund or receive a P2P payment. Bank account balances can be accessed by check, debit card, or account and routing number instructions, all of which are simply access devices drawing on the same source of funds. The transaction life cycle above distinguishes between funds load and funds receipt instruments. Both categories include the same instruments, but in the former they are being used by the sender and the latter by the recipient. Instruments can also differ for any payment: for example, the sender may use a credit card but the receiver may withdraw the funds in cash.

Clearing and settlement networks are the background infrastructure by which funds move between counterparties' instruments: physical check exchange and electronic check networks, wire networks, Automated Clearing House (ACH), book transfer, and card networks. Settlement networks are not usually visible to consumers, but function in distinct ways, are operated by different third parties, and vary in cost, speed, and consumer protections.

¹ The 2010 *Federal Reserve Payment Study* encountered precisely this classification difficulty in conducting the *Check Sample Study*, and the study authors confirm that some small businesses are essentially indistinguishable from consumers from their payments data.

3 Current landscape: Life cycle of a P2P payment

Working with the above taxonomy, this section elaborates on the different options at each stage of the P2P payment life cycle. A P2P transaction will flow through one and only one of the options at each stage. This framework classifies individual transactions; the paper covers broader use cases and third-party providers in a later section.

3.1 Counterparties: Sender and recipient

There are two counterparties to a person-to-person payment: the sender and the recipient. Three basic types of P2P payments can be made between these counterparties: casual payments between two consumers, international remittances between two consumers, and small business payments from a consumer to a sole proprietor.

Casual payments are transactions between two consumers, and are usually small-value payments like paying a coworker to split the bill at lunch, giving a child an allowance, or chipping into a group gift for a friend. P2P payment startups often market their products for casual payments, and the products address the challenges of quickly, conveniently, and precisely settling small debts. The occasional inconvenience of cash and checks, the prevailing choices for casual payments, creates an opportunity for electronic payments to improve the process. However, casual payments are only a small part of the broader P2P market.

International remittances are another type of transaction between two consumers. Unlike casual payments, however, international remittances are cross-border payments. In the United States, remittances are usually funds sent by immigrants to family in their native country to cover expenses or build wealth. The World Bank estimates that U.S. residents sent \$48.3 billion of remittances in 2009.² Remittances often represent critical income for the recipients, and senders may have higher expectations of the security around these payments than would friends settling small lunch debts.

The final category of P2P transactions is consumer payments to small business. This includes payments made to someone like a piano teacher, landlord, or maid. CashEdge, a major provider of online P2P payments, has found that most of the transactions made with its Popmoney service are actually small business bill payments.³ Additionally, the average Popmoney payment is \$282, significantly higher than what one would predict for casual payments. One reason for describing these payments as P2P payments is the difficulty that payments researchers have in classifying the recipient as a consumer or business. These businesses are often sole proprietorships, where

²The World Bank, "Migration and Remittances Factbook 2011," *The World Bank*, 2010, Published online at <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:21122856~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html> [accessed March 22, 2011], Remittances Data: Outflows.

³ Daniel Wolfe, "The business of person-to-person payment's more business than personal," *American Banker*, 2010, https://secure.americanbanker.com/issues/175_175/the-biz-of-p2p-payments-1025383-1.html.

payments can be made to an individual's name and deposited in a personal checking account, making it difficult to distinguish small businesses from consumers in industry data. The resulting classification errors make it difficult to determine exactly what percentage of P2P payments are made to consumers versus businesses.

3.2 *Access channels*

3.2.1 Mail / face-to-face

Historically, consumers were limited to face-to-face interactions to make payments, because they had to physically exchange the payment instrument. This is still the case for consumers making a P2P payment using cash or checks, currently and historically the most popular methods. Therefore, face-to-face handoffs, the mail, and courier services remain important access channels for P2P payments.

3.2.2 Walk-in agent / bank branch

Bank branches and money transmitter agents offer another traditional access channel for P2P payments, allowing consumers to initiate transactions in-person that then settle on private electronic networks. For example, consumers can access Western Union and MoneyGram money transfer services through agent locations, frequently inside convenience or grocery stores where they already shop. Similarly, banked consumers may go to their local branch to send a wire. Agents and branches have a greater level of third-party intermediation than other P2P payment channels, offering consumers the comfort and perceived security of interacting with a human agent.

3.2.3 Kiosk / ATM

Some banks and other providers allow consumers to send P2P payments from ATMs or unattended kiosks. Citibank, for example, offers a service allowing U.S. customers to send money to relatives in Mexico with Banamex accounts via their ATMs.⁴ Nexxo, a California start-up, offers a unique international remittance solution through cash-accepting kiosks installed throughout the United States.

3.2.4 Online

Online P2P payments have been an area of fast growth and tremendous buzz in the past decade, with many new providers entering the market in the '90s and early '00s. Consumers can now send payments online via third parties like PayPal and Amazon Payments, or can go to their bank's online banking portal for similar services. Bank-intermediated online P2P payments have grown dramatically in the last two years, as CashEdge and other providers announced a

⁴ "More U.S. banks provide ATM-based money transfers to Mexico," *ATM Marketplace*, 2003, <http://www.atmmarketplace.com/article/135907/More-U-S-banks-provide-ATM-based-money-transfers-to-Mexico>.

multitude of bank partnerships.⁵ Consumers have benefitted from the proliferation of online options with greater convenience and accessibility.

3.2.5 Mobile

The ability for consumers to send P2P payments using their mobile phones is a still more recent innovation in the payments industry. New products allow users to transfer money with their phones using text messages, special applications, or the mobile browser to access an online service. Established payment providers that traditionally have focused on other channels are now offering mobile access to P2P products. For example, PayPal and Western Union are both expanding their mobile capabilities. The mobile channel offers consumers still more convenience and accessibility as the phone is available at any time of day or night, usually right in the user's pocket.

3.3 *Funds load and receipt instruments*

As noted above, funds load instruments are how senders fund P2P transactions and funds receipt instruments are used by the receiver to collect the payments.

Cash is the simplest and most ubiquitous instrument; anyone one can pay with or accept cash regardless of whether they have a bank account. Cash is not only an instrument, but also a store of value, and is therefore the only instrument that can clear without going through a clearing or settlement network. Cash can also be used to fund transactions at physical access channels, but cannot be used to make payments through the online or mobile channel.

Counterparties can also choose bank accounts as an instrument to send or receive funds. While the bank account is the underlying store of value, counterparties must also use an access device to use the funds. The primary access devices are checks, debit cards, and online or telephonic instructions using routing and account numbers. Checks are the traditional access device and can be used in physical access channels. Debit cards can be used both in physical locations by presenting the card and in virtual environments by typing the card number. Some providers also accept telephonic or online payment instructions with routing and account numbers to initiate an account-to-account transfer. Each of these access devices allows payment and receipt of funds from the bank account through different clearing and settlement networks.

P2P transactions can also be funded and received with a prepaid account. This prepaid account would not necessarily have to be associated with a prepaid card, and may not even be held by a bank, but is rather any account that has been pre-funded for the purpose of making payments. For example, a PayPal stored value account that is managed online or through a mobile phone would be a prepaid account instrument for funds load and receipt. Senders can also fund P2P payments

⁵ "100 banks to launch person-to-person payments by Q2," *Bank Systems & Technology*, 2010, <http://www.banktech.com/payments-cards/showArticle.jhtml?articleID=223101176>.

with a credit card, an instrument that works in both physical and virtual settings. Recent innovations allow recipients to receive P2P payments to their credit cards as well, providing a credit against their statement.

3.4 *Clearing and settlement networks*

3.4.1 Check

Consumers still rely primarily⁶ on paper methods to make P2P payments using cash and checks. As described above, cash does not flow through clearing or settlement networks as it is already a store of value. Checks, on the other hand, must be settled through physical or electronic exchange of the items between the bank on which the check was written and the bank where it is deposited. Today, the vast majority of checks are cleared over electronic networks,⁷ with only a small number of items physically shipped between banks. Electronic check clearing networks have dramatically reduced the amount of time between customer deposit and funds availability. Receivers with bank accounts can easily accept and deposit checks to their accounts. Unbanked receivers can also accept checks by using a third-party like a check casher to exchange the liability for cash.

3.4.2 Wire

Wire transfers are another traditional P2P payment settlement mechanism, and flow over some of the original electronic payment networks in the United States. Our current wire transfer system has its origins in the telegraph industry: banks historically sent payment instructions by telegraph, and funds were immediately available and final. Today, the major U.S. wire networks are Fedwire (operated by the Federal Reserve) and the privately-held CHIPS network. Wire transfers effect immediate and final fund settlement, and are therefore real-time gross settlements (RTGS). Wires can only be initiated or received by those with bank accounts.

3.4.3 ACH

The ACH network is a batch-settled electronic payments network that consumers associate with such transactions as payroll direct deposit and preauthorized bill payments, such as mortgage or insurance payments. ACH settlement of P2P transactions is a relatively recent innovation, and has only taken off since the advent of account-to-account transfer technology used to fund bank accounts opened online. ACH transactions settle one to two days after the sender initiates payment. Like wire transfers, ACH payments can only be made between two bank accounts.

⁶ The *2010 Federal Reserve Payments Study* finds that there were 2.8 billion consumer to consumer checks written in 2009 with an average value of \$472. Moreover, this represents an increase of 600 million checks since 2006. Study can be found at http://frbervices.org/files/communications/pdf/research/2010_payments_study.pdf.

⁷ At the time of the *2010 Federal Reserve Payments Study*, an estimated 96 percent of checks were cleared electronically.

U.S. banks can choose between two ACH network operators: the Federal Reserve and the Electronic Payments Network (EPN), a private company.

3.4.4 Book transfer

A book transfer is a transaction in which money moves by simply writing the value off one account and into another: an accounting reconciliation more than a distinct payments network. P2P transactions between two customers of the same bank or third-party can be settled this way, completely bypassing other networks. With the rise of online auctions, payments settled by book transfers between prefunded online accounts emerged as a low-cost way for buyers and sellers to transact without sharing banking information. PayPal is the most well-known provider of this service, although competitors offer similar services.

3.4.5 Card networks

Card network settlement is the next frontier for P2P payments, promising convenient real-time transactions over widely accepted networks of card holders. Although the idea of card-based settlement is not new, there have been few and only limited implementations in the marketplace. While today card networks are generally used for deducting funds from customer accounts or lines of credit, it is technologically possible to push credits in the opposite direction onto the cardholder's statement. This new transaction type has been introduced explicitly for P2P payments, enabled by relevant rule-writing by the networks.⁸ Potential network providers include not only MasterCard and Visa, but also smaller networks like Discover, Shazam, and a host of other competitors.

In the past year, both Fiserv and CashEdge have announced plans to add debit network settlement capabilities to their currently ACH-based products. Fiserv intends for ZashPay to integrate with the company's in-house card network, ACCEL-Exchange.⁹ CashEdge has partnered with FIS to leverage the processor's NYCE card network.

4 Use cases

4.1 Checks

Despite a plethora of electronic options, many consumers still choose to make P2P payments using checks. The *2010 Federal Reserve Payments Study* found that approximately 2.4 billion P2P checks are written every year, and contrary to a broader trend of payments electrification, this volume has instead grown by three percent per annum since 2006. For the moment, checks remain a relatively convenient and inexpensive way for consumers with bank accounts to pay

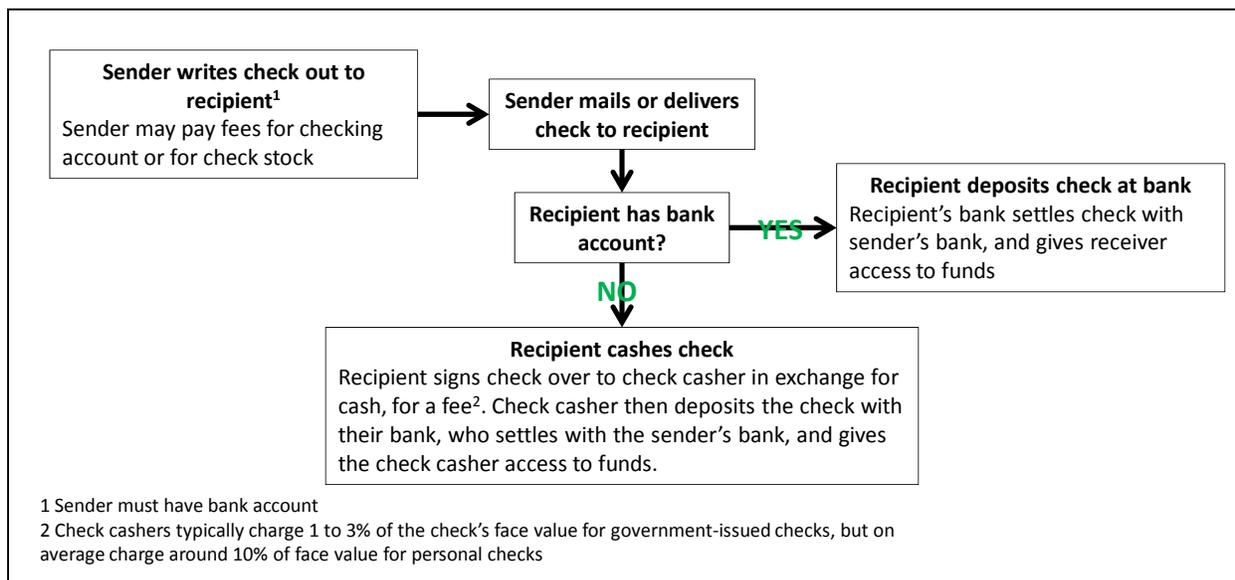
⁸Visa, "Visa moves beyond the point-of-sale – delivers personal payments to U.S. account holders," *Visa*, 2011, <http://corporate.visa.com/media-center/press-releases/press1109.jsp>.

⁹"Visa brings P2P payments to U.S. cards via Fiserv and CashEdge," *Digital Transactions*, 2011, <http://www.digitaltransactions.net/news/story/2974>.

other consumers and small businesses. If the recipient has a bank account, receipt is a straightforward matter of depositing the check. For recipients without bank accounts, it may be necessary to use a check cashing service, which often means paying hefty fees.

In the transaction life cycle of a P2P check payment, a consumer can write a check to either another consumer or to a small business. The consumer must then deliver the check to the recipient face-to-face or by mail. Consumers can also have their bank cut and mail a check on their behalf through the online bill payment service, allowing the sender to use the online access channel even when the recipient does not accept electronic payments.¹⁰ The check will be settled and cleared by the counterparties' banks, most likely through check image clearing networks like the Federal Reserve, Viewpointe, and SVPCo. The paper check itself acts as the funds access and receipt device to the sender's and recipient's bank accounts.

Figure 2: Check settlement of P2P payments



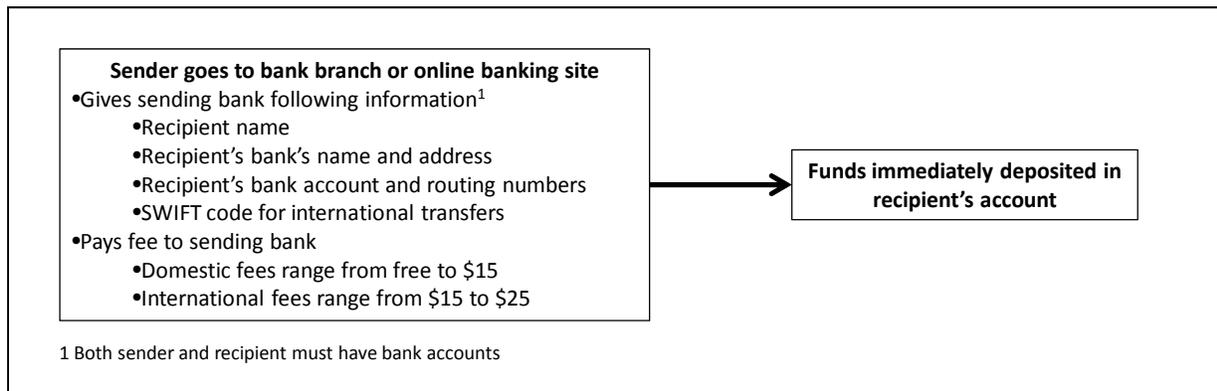
4.2 Wire

Wires were one of the earliest electronic P2P payment options, and are classically used for high-value, time sensitive payments. Wires are only available to banked consumers, and often have relatively high fees. The sender of a wire must know the recipient's bank account information in advance of making the payment, but no action is required of the recipient to get the money. In addition to this convenience for the recipient, wires also settle immediately, which is sometimes a critical factor for consumers.

¹⁰ "P2P payments evolving their uses for small business," *American Banker*, 2011, <http://www.cashedge.com/news-events-news-20110103.php>.

To initiate a wire transaction, the sender goes to a bank branch or their online banking portal, and then provides several pieces of information. The sender must be positively identified, and must also provide the recipient's name, bank name and address, bank account and routing numbers, and a SWIFT code if it is an international transaction. The wire is funded from the sender's bank account, and is immediately deposited in the recipient's bank account.

Figure 3: Wire settlement of P2P payments



4.3 Western Union

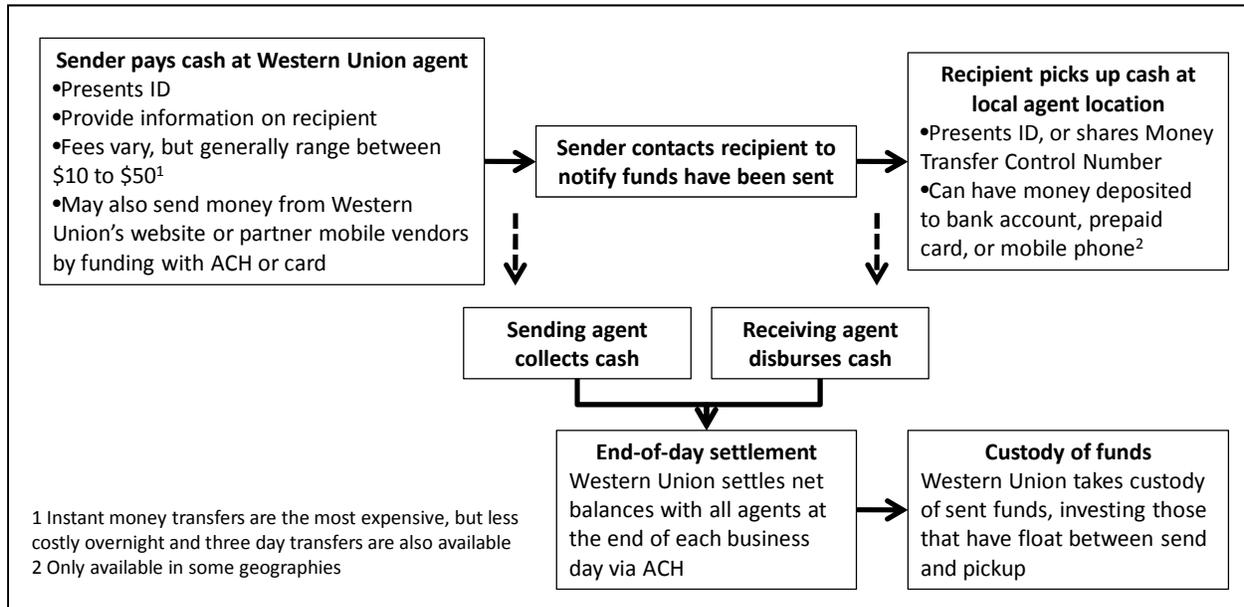
Western Union and similar businesses like MoneyGram and Xoom are major providers of P2P payments in the United States, especially for immigrants sending international remittances. Western Union has a network of more than 400,000 agents globally, allowing customers to send remittances to almost any corner of the world for cash payout. The company offers near real-time money transfers by facilitating transactions among these many agents. Western Union agents confirm receipt of cash from the sender in the company's proprietary messaging system. The receiving agent will access this message and then give the recipient cash. To the consumer this feels like a real-time transaction, but in effect the receiving agent is advancing Western Union a low-risk intraday credit, backed by Western Union's guarantee of settlement. Western Union reconciles with all agents at the end of the day, paying those who on net pay out more transfers than they take in, while collecting funds from those who take in more transfers than they pay out. When there is a time lag between when the sender initiates the transfer and the recipient picks up cash, Western Union invests the funds. Customers are willing to pay a premium price for Western Union's convenience, speed, and global ubiquity.¹¹

In a Western Union P2P transaction both counterparties are consumers. The sender can initiate a payment at an agent location, a kiosk, online, or using their mobile phone in some limited

¹¹ For example, the cost to send \$300 from Atlanta to Mexico via Western Union with instant availability is \$14.99. This price estimate was found on 4/12/11 using Western Union's website.

markets.¹² The sender can fund the transaction using cash, or a credit, debit or prepaid card. Senders can also use their account and routing numbers to fund transactions made online or by mobile. Western Union has been very proactive in expanding the access channels and funding instruments available to remittances senders. The transaction clears by ACH in countries where the network is available, and by wire in other geographies. Finally, the recipient can receive the funds as cash, or can direct them to their bank account using account and routing numbers.

Figure 4: Western Union P2P payment settlement



4.4 CashEdge

CashEdge is a major provider of ACH-settled P2P transactions through their Popmoney product. Formerly focused on account-to-account transfers, CashEdge rolled out Popmoney in 2009, and many banks have already added the service to their online banking suite.¹³ Popmoney is very similar to competitor Fiserv's ZashPay product, which is also deployed through clients' online banking platform.¹⁴ CashEdge facilitates domestic P2P payments, and despite initially marketing Popmoney as a tool for casual payments, today the service is commonly used for consumer bill

¹² Western Union's US customers can send money to any agent location using a mobile phone app when they fund the transaction with a credit or debit card. Additionally, the money can be deposited to a mobile prepaid account in the Philippines and Kenya, with more markets to be added in the future.

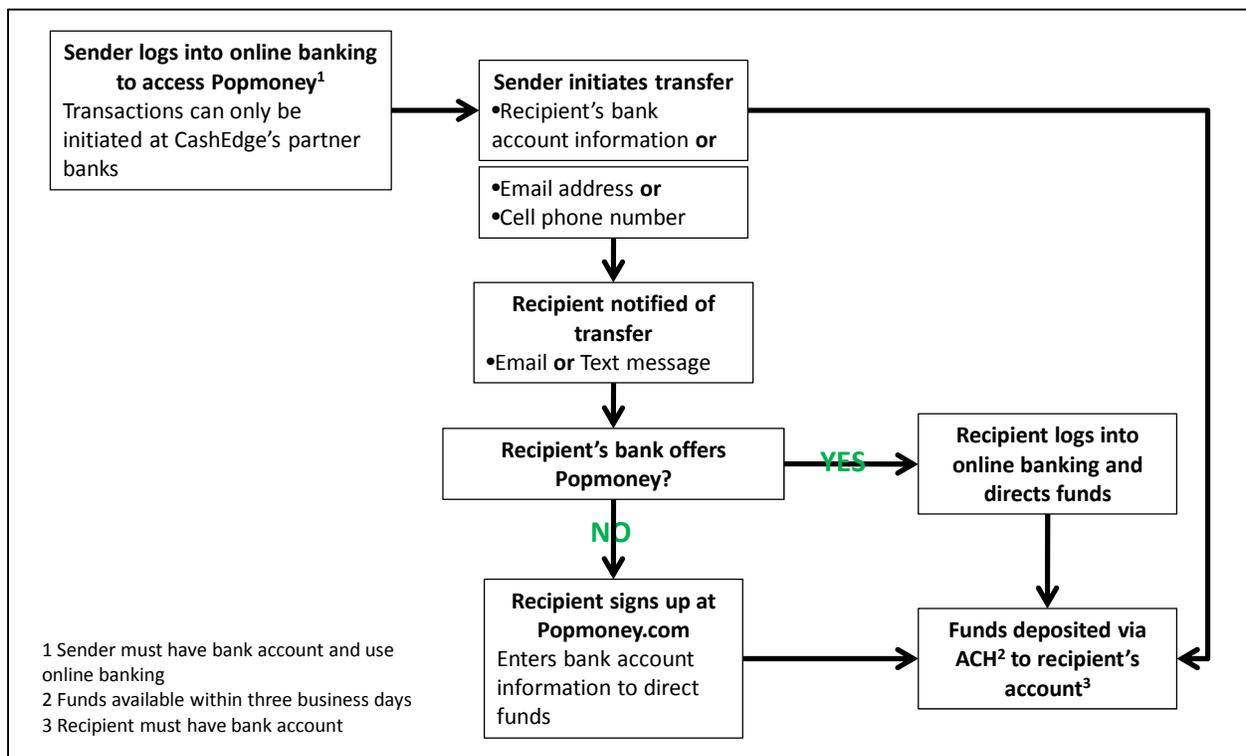
¹³ "More than 100 FIs expected to launch POPmoney P2P payments in 2010," *ATM Marketplace*, 2010, <http://www.atmmarketplace.com/article/127769/More-than-100-FIs-expected-to-launch-POPmoney-P2P-payments-in-2010>.

¹⁴ Fiserv acquired CashEdge in June 2011, and may combine the ZashPay and Popmoney client portfolios. From "Fiserv agrees \$465m CashEdge acquisition," *Finextra*, 2011, <http://www.finextra.com/news/fullstory.aspx?newsitemid=22719>.

payments to small businesses.¹⁵ CashEdge can be used to pay anyone with a bank account, as long as they are willing to share their bank account number and routing number. Senders only need the recipient's phone number or email address, which CashEdge then matches to the account and routing number provided by the recipient. In this manner, CashEdge protects the recipient's privacy. Although only those whose banks offer Popmoney can send payments, the recipient base is potentially much broader.

Consumers can use Popmoney to send a payment to another consumer or to a small business, and can access the service through online or mobile banking. The payment is funded from the sender's bank account using the account and routing number, and the recipient receives funds into their bank account the same way. CashEdge recently partnered with MoneyGram, an international money transmitter, and some recipients may be able to pick up their payment in cash at MoneyGram agents around the globe. Transactions are usually settled via ACH, although recent partnerships with EFT networks enable card network settlement as a speedier option in some cases.

Figure 5: CashEdge P2P payment settlement



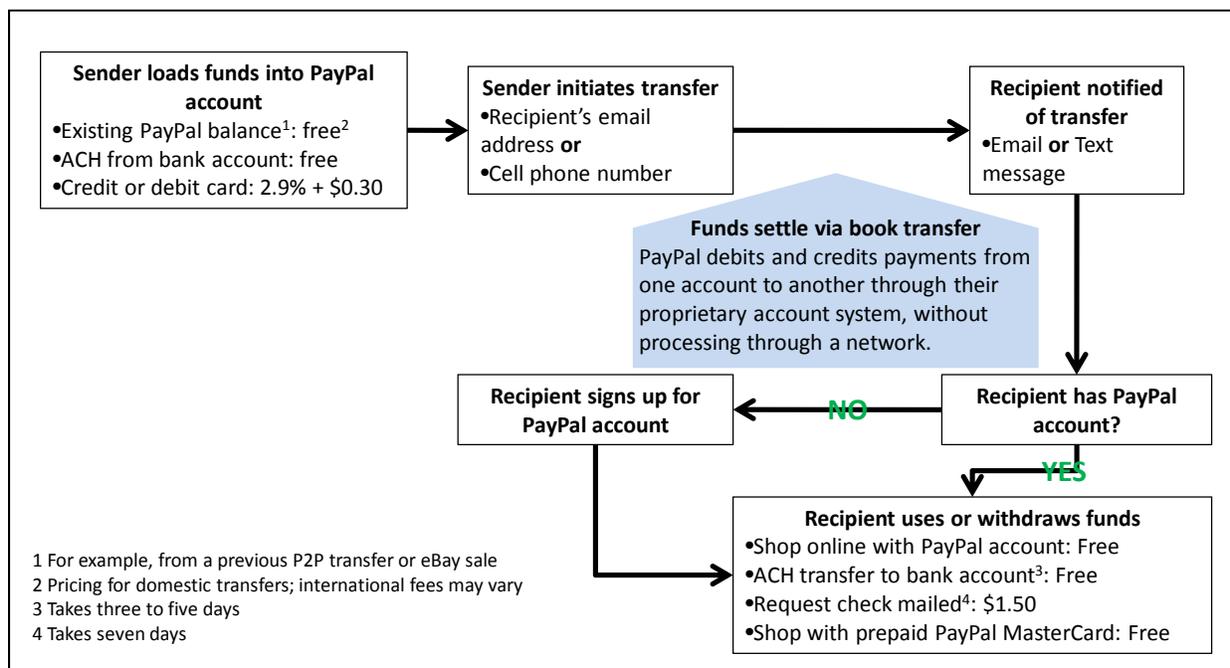
¹⁵ Wolfe, American Banker, 2010.

4.5 PayPal

As internet commerce exploded and online auctions took off, buyers and sellers faced a dilemma of exchanging money with strangers online in one-time transactions. Into this void stepped PayPal, offering a safe and anonymous way for eBay members to transact online. PayPal transactions are instantaneous, inexpensive, and allow greater user privacy than check or card payments, a major innovation for both the payments and ecommerce industries. PayPal's original P2P function relied on buyers (senders) prefunding stored value accounts and then using this prefunded value to pay sellers with PayPal accounts in the online marketplace. Sellers (recipients) would have the funds added to their account on PayPal's books, and they could withdraw the funds or alternatively use the funds to purchase goods from another account holder. In effect, PayPal established a closed-loop network of sellers and buyers online. Skrill (formerly MoneyBookers) offers a similar service, but has significantly lower market share than PayPal.

PayPal can be used by a consumer to pay either another consumer or a small business, and helping small online merchants accept payments has been a key part of the company's growth strategy. Users can access PayPal either online or through a mobile device. Today a PayPal account can be funded with a bank account, credit card, or prepaid account, and recipients can withdraw funds by requesting a check, or having the funds sent directly to their bank account or onto a PayPal-branded prepaid card. P2P transactions settle as book transfers.

Figure 6: PayPal P2P payment settlement

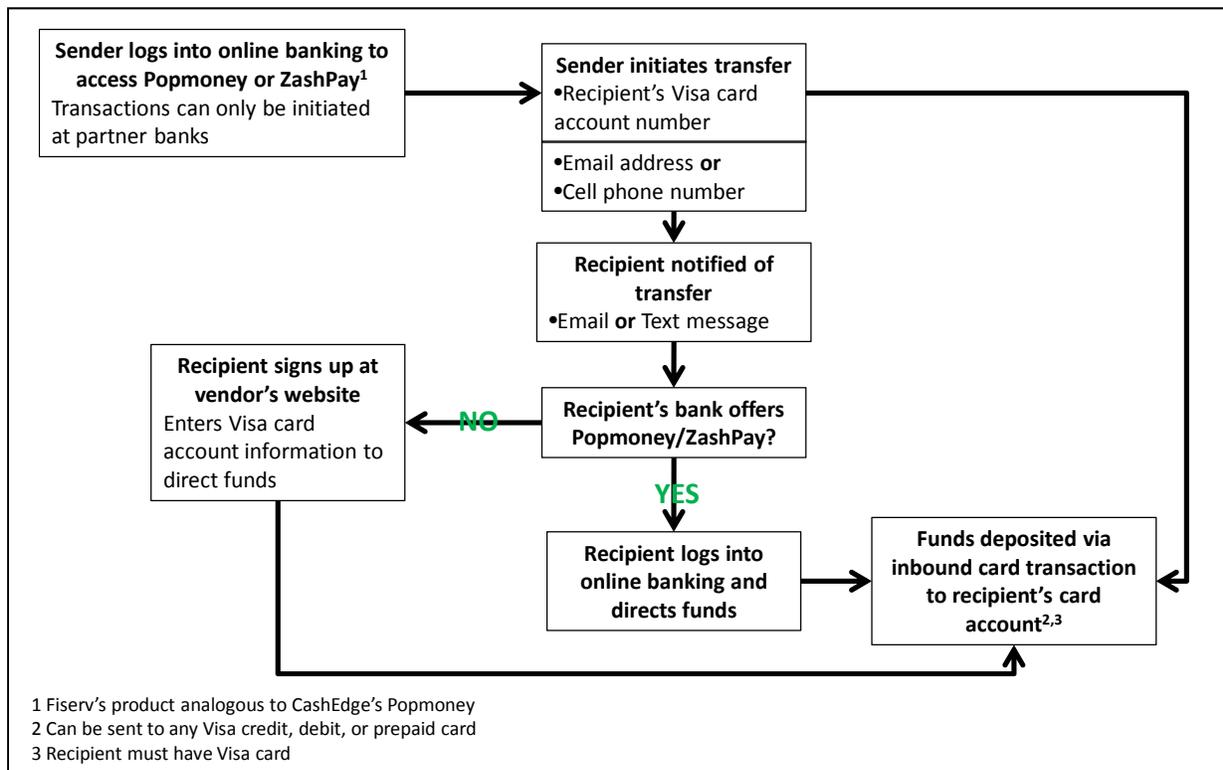


4.6 Visa

In March of this year, Visa announced their foray into the P2P marketplace, with plans to enable any Visa debit, credit, or prepaid cardholder to transact. At the same time, they announced a partnership with CashEdge and Fiserv, potentially offering access to the network of consumers using the Popmoney and ZashPay products. This product would not only create the largest network of electronic P2P endpoints virtually overnight, but would also allow for instantaneous clearing and settlement over Visa's card networks. Visa's attempt at P2P services has the opportunity to finally move the dial on reducing consumers' P2P check writing.

Visa's product is primarily intended for consumer-to-consumer payments. Consumers will log in to their mobile or online banking site and enter the card number, cell phone number, or email address of the recipient. Payments that are directed by card number will be credited immediately to the card account by an inbound transaction over the card network. If the sender instead enters a phone number or email address to direct the payment, the recipient will receive a notification that they have been sent money and will then have to enter their card account number to receive funds. This two-step process preserves recipient privacy if they would rather not share their account information with senders. Transactions will settle over card networks, and funds will be available to the associated Visa-branded card.

Figure 6: Visa P2P payment settlement



4.7 *Obopay*

Obopay offered one of the first and most successful mobile P2P payment tools in the United States. Users have to sign up for an Obopay account and then transact with other registered users. Obopay is therefore running a closed-loop network. The transfer service is intended primarily for casual payments between consumers as well as for charity donations. Obopay is primarily a mobile service, but also allows users to access and manage their accounts online. Users can fund their account using a debit card or routing and transit number, funds clear and settle over the ACH network, and funds can be withdrawn to a bank account or an Obopay prepaid card.

4.8 *ClearXchange*

ClearXchange is the latest entrant to the P2P game, and has the potential to shake up the market. Bank of America, JPMorgan Chase, and Wells Fargo launched the joint venture this May in Arizona, and the service will be available nationwide by the end of the year.¹⁶ The product is initially intended to facilitate P2P payments between customers of the three banks, which given their combined market share means this product could immediately reach 33.7% of banked US households.¹⁷ ClearXchange also limits bank participants' exposure to third-party risk. Unlike some of the models described above where the bank engages a vendor to manage the online banking P2P product, ClearXchange is a product developed and directly managed by the bank.

From the consumer's perspective, ClearXchange works similarly to PopMoney or ZashPay. The sender logs into online or mobile banking, enters the recipient's name, email, or mobile phone number, designates a funding account for the transaction, and executes the transfer. The recipient receives an email or text message alerting them to the transaction and prompting them to register their email or phone number with the service. The funds settle via ACH on the shared platform developed for the discontinued Pariter service between Wells Fargo and Bank of America,¹⁸ and are deposited directly into the recipient's bank account.

5 Risk Overview

P2P payments may seem new and unprecedented from the industry and media buzz surrounding them, but, as described above, most P2P payments actually rely on traditional networks and banking channels. Therefore, the risks posed by P2P payments are not original, but rather map to the risks of the underlying payment type. As the P2P payment life cycle (*Figure 1*) indicates, P2P payments include transactions made for a variety of purposes through various existing access channels and settlement networks. There is no single risk profile for a peer-to-peer

¹⁶ "Person-to-person payments get easier at big banks," New York Times, 2011, <http://bucks.blogs.nytimes.com/2011/05/25/person-to-person-payments-get-easier-at-big-banks>.

¹⁷ McKinsey Consumer Financial Life Survey, July 2011

¹⁸ "Wells Fargo, Bank of America close Pariter Solutions," The Paypers, 2011, <http://www.thepayers.com/news/payments-general/wells-fargo-bank-of-america-close-pariter-solutions/744531-27>.

payment. Instead, the risks of these transactions can only be evaluated by taking into account the distinguishing components of each transaction. Therefore, P2P payments do not necessarily differ from other payments in terms of risks. The following section explores some of the more frequently cited concerns about P2P payment risks, regulatory oversight and the risks of emerging payments, and further discusses a unique risk exposure of P2P payments, relationship risk.

5.1 Regulatory oversight

Regulation of P2P payments depends on the payment provider and the payment instrument. Financial institutions are subject to different regulatory and compliance regimes than non-banks. While banks are subject to prudential regulation, non-banks may be required to register as money service businesses and be licensed at the state level, and both banks and non-banks are subject to regulations regarding money laundering, unfair or deceptive practices, and privacy. The new Consumer Financial Protection Bureau (CFPB) is expected to provide oversight of non-bank payment service providers, ensuring consumer protections for P2P payment services.¹⁹

Finally, consumer protections for P2P payment products may rely more on the underlying terms and contracts between provider and customer, and may therefore vary from provider to provider. For example, the risk profile of payments made with a credit card will to some extent be dictated by the customer's agreements with the card network and issuer. These protections may not be dictated by regulation, but only enforced through contract law.

5.2 Emerging payments risk

Many in the financial services industry consider P2P payments a type of emerging payment. Michele Braun and colleagues established a basic risk framework for emerging payments in a 2008 paper,²⁰ a framework that applies to many P2P payment products. This section draws heavily from their work. Broadly, the risks of emerging payment are legal, operational, and fraud risk, and the ancillary threats of data security and illicit use risk. These risks will depend on the access channels and settlement networks used for the payment.

The legal risk of P2P payments depend on the settlement networks and access channels involved. There is greater legal ambiguity around more recent innovations in payments, for example P2P payments initiated on the mobile phone or those settled via book transfer, than for P2P payments made with checks, a traditional and fully established method. As case law develops, the legal risk of these payments will decrease.

¹⁹ "CFPB envisions casting wide net for nonbank supervision," *American Banker*, 2011, http://www.americanbanker.com/issues/176_121/cfpb-sees-wide-net-nonbank-supervision-program-1039339-1.html

²⁰ Michele Braun, James McAndrews, William Roberds, and Richard Sullivan, "Understanding risk management in emerging retail payments," FRBNY Economic Policy Review, September 2008.

Operational risk of P2P payments depends on several factors. Relatively young startups in the P2P payments business, particularly those using online or mobile access channels, may face greater operational insecurity than more established players that have developed and managed their technology over decades. Another factor of operational risk is whether the payment takes a virtual or physical form. Checks and cash, for example, face risks of supply chain disruption or physical destruction, while electronic payments may face risks of data corruption or erasure.

Fraud risks vary considerably by access channel and settlement network, and each transaction must be by incorporating information about the individual payment life cycle. As noted above, the risks of fraud may be mitigated by counterparty relationships for many P2P payments. Nevertheless, the risk of fraud in a money transmitter’s international remittance is quite different than that of a check sent in the mail, which is different still from a book transfer payment for an online auction purchase.

Emerging payments, including emerging P2P payments, may be particularly vulnerable to data security and illicit use risks. Data security risks refer to the possibility of payment and personally identifiable data being stored in databases where the data may be stolen by criminals or otherwise lost. While any electronic payment mechanism has some data security risk, startups and other small players may not have the knowledge or incentives to appropriately protect customer data. Illicit use risk is the possibility of bad actors using the payments system for money laundering, terrorist financing, or other criminal activities. Payment systems that enable international remittances can be tempting to those bad actors who wish to move ill-gotten funds out of the country. It is unfortunately the case that those features which make a payment product more efficient and valuable for consumers will also appeal to bad actors seeking to take advantage.

When evaluating the risks of data security and illicit use to different P2P payments, it is important to consider relative risk. The risks of payment system misuse are never completely eliminated, and the most realistic goal is typically risk minimization. While the public perception may be that emerging payment types are particularly risky, traditional P2P methods like cash or check may sometimes be relatively riskier than electronic services. The status quo methods of P2P payment may be

Figure 7: Emerging payment risk types

Type of Risk	Definition
Fraud	Risk of financial loss for one of the parties involved in a payment transaction arising from wrongful or criminal deception. The risk that a transaction cannot be properly completed because the payee does not have a legitimate claim on the payer.
Operational	Risk of financial loss due to various types of human or technical errors that disrupt the clearing and settlement of a payment transaction. The risk that a transaction cannot be properly completed due to a defective device or process that precludes the completion of all the steps required in a transaction.
Legal	Risk that arises if the rights and obligations of parties involved in a payment are subject to considerable uncertainty.

Source: Braun et al., 2008

familiar to consumers, but they are not necessarily safer, and are often less efficient than innovative new payment forms.

5.3 *Relationship risk*

A unique feature of P2P payments is the relationship between counterparties. In many cases, the counterparties are well-known to each other and have an ongoing personal relationship above and beyond the particular financial transaction in question. In other cases, P2P payments are made between unacquainted individuals transacting remotely who have no method of evaluating each other or even authenticating identity. In either case, the level of trust between people making P2P payment is distinct from a retail purchase, bill payment, or business-to-business transactions

Casual P2P payments are typically made between coworkers, family, or friends, and international remittances are almost always sent to family members. Small business bill payments that are captured as P2P payments are likely not one-time impersonal transactions, but are rather recurring bill payments to gardeners, personal trainers, babysitters, and other relationship-based small businesses. The risk of fraud or default in these transactions is low because of the underlying relationships. However, when a payment fails to complete, this can strain the relationship and potentially put the sender's reputation at risk.

With a completely different risk profile, online P2P payment tools emerged as a response to the need for two individuals with no preexisting relationship to transact online. In an online auction, the seller has no way of verifying the buyer's identity and vice versa. The sale is likely to be one-time transaction. The seller therefore risks shipping merchandise only to have the buyer default on payment. Buyers must be concerned with paying for a good upfront only to receive a defective product. Without a third-party intermediary, these two unacquainted counterparties have no way to hold each other accountable. PayPal and similar services addressed this problem. PayPal steps in to authenticate the buyer's payment and hold the funds in escrow so that they can be refunded in the event of seller fraud. PayPal's reputation therefore stands in for that of both buyer and seller, offering the counterparties a greater level of confidence. Some P2P products, therefore, mitigate the existing relationship risk in online transactions.

6 **Conclusion**

P2P payments have always been a part of the payments landscape. Innovation is beginning to drive a proliferation of consumer choice beyond traditional cash and check payments, so that senders and recipients today will have more options for access channel, funding and receipt instruments, and even settlement networks when they make P2P payments. As this paper has described, most of these "new" payment products actually rely on existing access channels and settlement networks. P2P payments are therefore not uniquely risky, but rather have the risk characteristics of the underlying payment technologies they rely on. The risk profile of each P2P

product must be evaluated across the specific use case, access channel, and settlement network, a specific risk profile. A one-size-fits-all risk management plan cannot suffice for such a diverse market. Finally, in evaluating the risk of P2P payments, consumers, banks, and third parties should make comparisons to the status quo of cash and check transactions. Many times new products will offer benefits in terms of efficiency and innovation that may outweigh their greater risk, and in some cases the risk of new products may be lower than that of the status quo.

Appendix I: Players mapped across the transaction life cycle²¹



CashEdge	Consumer	Online, mobile	Bank account	ACH, EFT network	Bank account	Consumer, small business
MoneyGram	Consumer	Agent, online, mobile	Cash, bank account, credit card, prepaid account	ACH, wire	Cash, bank account, prepaid account	Consumer
Obopay	Consumer	Online, mobile	Bank account	ACH	Bank account, prepaid account	Consumer
PayPal	Consumer	Online, mobile	Bank account, credit card, prepaid account	Book transfer	Bank account, prepaid account	Consumer, small business
Visa	Consumer	Online, mobile	Bank account, credit card, prepaid account	EFT network	Bank account, credit card, prepaid account	Consumer, Small business
Western Union	Consumer	Agent, kiosk, online, mobile	Cash, bank account, credit card, prepaid account	ACH, wire	Cash, bank account, prepaid account	Consumer
Xoom	Consumer	Online	Bank account, credit card, prepaid account	ACH, wire	Cash, bank account, prepaid account	Consumer
ZashPay	Consumer	Online, mobile	Bank account	ACH, EFT network	Bank account	Consumer, small business

²¹ Players described in this chart are meant to be illustrative and not exhaustive.